WHAT IS CLAIMED IS:

1. A power supply circuit for detachably coupling a hot-pluggable subsystem, wherein said power supply circuit comprises:

a power supply output for supplying power to a load;

a pass device coupled to said power supply output for controlling said supplied power; and

a control circuit coupled to a gate of said pass device, wherein said control circuit detects a gate voltage of said pass device and controls said pass device in conformity with said gate voltage.

2. The power supply circuit of Claim 1, wherein said control circuit samples and holds a representation of a current required to produce said gate voltage, and wherein said current representation is used subsequently to control said pass device.

3. The power supply circuit of Claim 1, wherein said control circuit further comprises a voltage change detector coupled to said gate of said pass device for detecting changes in said gate voltage due to a short-circuit condition occurring on said power supply output.

4. The power supply circuit of Claim 1, wherein said control circuit determines that a short-circuit condition exists on said power supply output by detecting the difference in a rate of change of said gate voltage due to said short-circuit condition reducing a miller effect that would otherwise reduce said rate of change further, and wherein said control circuit disables said pass device by controlling said gate voltage if said short-circuit condition exists on said output.

5. The power supply circuit of Claim 2, wherein said control circuit comprises a timing circuit for determining a time period and wherein said control circuit determines that said short-circuit condition exists by detecting that said gate voltage is not exhibiting a predetermined amount of miller effect rate of change reduction.

6. The power supply circuit of Claim 5, wherein said timing circuit comprises a ramp generator for generating a linearly increasing voltage ramp and a first comparator coupled to said ramp generator whereby said first comparator determines that said time period has elapsed when said voltage ramp has reached a threshold, and wherein said control circuit comprises a second comparator coupled to said gate of said pass device for determining that said gate voltage does not exhibit said miller effect rate of change reduction by determining that said gate voltage has exceeded a second threshold before said time period has elapsed.

7. The power supply circuit of Claim 1, wherein said control circuit comprises:

a transconductor coupled to an output of said ramp generator; and

a current mirror coupled to an output of said transconductor and further coupled to said gate of said pass device for forcing said gate voltage to follow said voltage ramp until said voltage ramp has reached said threshold.

8. The power supply circuit of Claim 2, wherein said control circuit comprises a restart circuit for restarting charging of said gate after said control circuit determines that said short-circuit condition exists.

9. The power supply circuit of Claim 1, wherein said control circuit comprises an under-voltage lockout circuit for detecting that a voltage supplied to said pass device is insufficient for proper operation of said power supply, and wherein said control circuit prevents charging of said gate unless said voltage supplied to said pass device is sufficient for proper operation.

10. The power supply circuit of Claim 1, wherein said control circuit comprises a power-on-reset circuit for delaying charging of said gate for a predetermined time interval.

11. The power supply circuit of Claim 1, wherein said control circuit further comprises a normally-on shunt device coupled to said gate of said pass device, and wherein said shunt device clamps the voltage of said gate of said pass device until said control circuit reaches a predetermined operating voltage.

12. The power supply circuit of Claim 11, wherein said normally-on shunt device is a depletion mode field effect transistor.

13. A method for controlling a power supply current from a power supply output coupled to a hot-pluggable sub-system, wherein said power supply current is conducted through a pass device having a gate, said method comprising:

supplying a current to said gate;

detecting a gate voltage of said pass device; and

subsequently controlling said pass device in conformity with said detected gate voltage.

14. The method of Claim 13, further comprising sampling said gate voltage and wherein said controlling is performed in conformity with said sampled gate voltage.

15. The method of Claim 13, wherein said detecting includes detecting changes in said gate voltage due to a short-circuit condition occurring on said power supply output.

16. The method of Claim 13, further comprising clamping said gate voltage during startup with a normally-on shunt device, whereby no supply voltage is necessary to perform said clamping.

17. A power supply control circuit having exactly three electrical connections, comprising:

a first electrical connection terminal for connecting to a source of direct current;

a second electrical connection terminal for connecting to a ground reference associated with said source of direct current;

a third electrical connection terminal for connecting to a gate of an pass device external to said power supply control circuit, wherein said pass device has a channel coupled between said source of direct current and a hot-pluggable subsystem power connection; and

a control circuit coupled to said third electrical connection terminal, wherein said control circuit controls charging of said pass device in conformity with a voltage of said third electrical connection terminal.

18. The power supply circuit of Claim 17, wherein said control circuit further comprises a voltage change detector coupled to said third electrical terminal for detecting a change in said gate voltage due to a short-circuit condition occurring on said power supply output.

19. The power supply circuit of Claim 17, wherein said control circuit further comprises a normally-on shunt device coupled to said third electrical terminal, and wherein said shunt device clamps the voltage of said gate of said pass device until said control circuit reaches a predetermined operating voltage.

20. The power supply circuit of Claim 17, wherein said control circuit further comprises an under-voltage lockout protection circuit coupled to said first electrical connection terminal for detecting that a voltage supplied to said pass device is insufficient for proper operation of said power supply, and wherein said control circuit prevents charging of said gate unless said voltage supplied to said pass device is sufficient for proper operation, and whereby said under-voltage lockout protection may be varied by coupling said first electrical connection terminal to said source of direct current through a voltage-dropping component.

21. A power supply circuit having exactly three electrical connections, comprising:

a first electrical connection terminal for connecting to a source of direct current;

a second electrical connection terminal for connecting to a ground reference associated with said source of direct current;

a third electrical connection terminal for connecting to a hot-pluggable subsystem power input;

a pass device having a channel coupled between said first electrical connection terminal and said third electrical connection terminal; and

a control circuit coupled to a gate of said pass device, wherein said control circuit detects a gate voltage of said pass device and controls charging of said pass device in conformity with said gate voltage.

22. The power supply circuit of Claim 21, wherein said control circuit comprises a mirror element having characteristics matched to characteristics of said pass device, wherein said mirror element has a gate coupled to said gate of said pass device for creating a scaled current proportional to a current through said channel of said pass device whereby said control circuit controls charging of said pass device.

23. The power supply circuit of Claim 21, wherein said control circuit further comprises a short circuit detector coupled to said mirror element for detecting changes in said scaled current due to a short-circuit condition occurring on said power supply output.

24. The power supply circuit of Claim 21, wherein said control circuit further comprises a normally-on shunt device coupled to said gate of said pass device, and wherein said shunt device clamps the voltage of said gate of said pass device until said control circuit reaches a predetermined operating voltage.

25. A power supply circuit for detachably coupling a hot-pluggable subsystem, wherein said power supply circuit comprises:

a power supply output for supplying power to a load;

a pass device coupled to said power supply output for controlling said supplied power; and

a control circuit coupled to a gate of said pass device, wherein said control circuit comprises a normally-on shunt device coupled to said gate of said pass device, and wherein said shunt device clamps the voltage of said gate of said pass device until said control circuit reaches a predetermined operating voltage.

26. The power supply circuit of Claim 25, wherein said normally-on shunt device is a depletion mode transistor having a channel coupled between said gate of said pass device and a power supply rail and a gate coupled to a reference voltage of said control circuit, whereby said normally-on shunt device is turned off when said reference voltage is active.

27. The power supply circuit of Claim 26, further comprising at least one internal regulator for supplying a power supply voltage to said control circuit, and wherein said reference voltage is an output of said regulator.

28. A power supply circuit for detachably coupling a hot-pluggable subsystem, wherein said power supply circuit comprises:

a power supply input for connection to a source of direct current;

a power supply output for supplying power to a load;

a pass device coupled to said power supply output and further coupled to said power supply input for controlling said supplied power; and

a control circuit coupled to a gate of said pass device, wherein said control circuit comprises an under-voltage lockout protection circuit for detecting that a voltage supplied to said pass device is insufficient for proper operation of said power supply circuit, and wherein said control circuit prevents charging of said gate unless said voltage supplied to said pass device is sufficient for proper operation, and whereby said under-voltage lockout protection level may be varied by coupling said power supply input to said source of direct current through a voltage-dropping component.